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| APPLICATION NO.                   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------|-------------|----------------------|---------------------|------------------|
| 10/678,989                        | 10/02/2003  | Gi Youl Kim          | PA2625US            | 1554             |
| 26263                             | 7590        | 06/06/2006           | EXAMINER            |                  |
| SONNENSCHN NATH & ROSENTHAL LLP   |             |                      | ZERVIGON, RUDY      |                  |
| P.O. BOX 061080                   |             |                      | ART UNIT            |                  |
| WACKER DRIVE STATION, SEARS TOWER |             |                      | PAPER NUMBER        |                  |
| CHICAGO, IL 60606-1080            |             |                      | 1763                |                  |

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/678,989             | KIM ET AL.          |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Rudy Zervigon          | 1763                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,5 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 24, 2006 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 5, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Os; Ron et al. (US 5,792,272 A) in view of Kholodenko; Arnold et al. (US 6185839 B1). van Os teaches a deposition system (column 2; lines 10-15) comprising: a first gas (column 4, lines 18-31) fluidly coupled to a chemical vapor deposition chamber (volume 16+18; Figure 1; column 3, lines 30-56) through a first gas distribution channel (56; Figure 4) disposed within a lid (10+17; Figure 2) of the chemical vapor deposition chamber (volume 16+18; Figure 1; column 3, lines 30-56), the lid (10+17; Figure 2) further supporting a shower head (15; Figure 2,3A) disposed within the chemical vapor deposition chamber (volume 16+18; Figure 1; column 3, lines 30-56) and separate from the first gas distribution channel (56; Figure 4), said lid (10+17; Figure 2) having an interior rim (70; Figure 4) including a plurality of cleaning gas injection ports (44b;

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Figure 4) each of which is fluidly connected to the first gas distribution channel (56; Figure 4) – claim 1

van Os does not teach various ones of the cleaning gas injection ports (44b; Figure 4) which are orientated at different angles with respect to an interior of a wall (inside surface of 70; Figure 4) of the chemical vapor deposition chamber, said wall (inside surface of 70; Figure 4) being attached to said lid (10+17; Figure 2)

van Os further does not teach:

- i. The deposition system (column 2; lines 10-15) of claim 1, wherein the plurality of first gas injection ports (44a,b; Figure 4; column 7, lines 18-31) include a first subset of the plurality of first gas injection ports (44a,b; Figure 4; column 7, lines 18-31) disposed at a first angle (column 7, lines 48-56) relative to interior of the wall (inside surface of 70; Figure 4) of the deposition chamber (volume 16+18; Figure 1; column 3, lines 30-56), and a second subset of the plurality of first gas injection ports (44a,b; Figure 4; column 7, lines 18-31) disposed at a second angle (column 7, lines 48-56) relative to the interior of the walls (inside surface of 70; Figure 4) - claim 5
- ii. The deposition system (column 2; lines 10-15) of claim 1, further including internal plumbing (46,48; Figure 4; column 7, lines 18-31) coupling the first gas (column 4, lines 18-31) distribution channel (56; Figure 4; column 7, lines 18-31) to the first gas source, within the wall (inside surface of 70; Figure 4) of the deposition chamber (volume 16+18; Figure 1; column 3, lines 30-56) - claim 7
- iii. The deposition system (column 2; lines 10-15) of claim 1, further including a plurality of channel openings (baffle plate 62; Figure 4; column 7, lines 18-31) coupling the internal

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plumbing to the first gas (column 4, lines 18-31) distribution channel (56; Figure 4; column 7, lines 18-31) - claim 8

- iv. The deposition system (column 2; lines 10-15) of claim 1, further including a chamber collar (40; Figure 4) separating the lid (10+17; Figure 2) of the deposition chamber (volume 16+18; Figure 1; column 3, lines 30-56) from wall and including internal plumbing (46,48; Figure 4; column 7, lines 18-31) coupling the cleaning gas (column 4, lines 18-31) distribution channel (56; Figure 4; column 7, lines 18-31) to the first gas source— claim 9

van Os does not teach a first gas “source”.

Kholodenko teaches a deposition system (Figure 1) including a “first gas source” (95, Figure 1).

Kholodenko further teaches a similar interior rim (148; Figure 1) including cleaning gas injection ports (140a, 140c; Figure 1) which are orientated at different angles with respect to an interior of a wall (inside surface of 148; Figure 1) of the chamber (25; Figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Kholodenko’s first gas source and optimize the angle(s) of van Os’s gas injection ports (44b; Figure 4).

Motivation to add Kholodenko’s first gas source and optimize the angle(s) of van Os’s gas injection ports (44b; Figure 4) is for delivering a desired process gas and for providing a “uniform flux of process gas entering the chamber 2” as taught by Kholodenko (column 5; lines 25-39). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art. (Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Rose, 220 F.2d 459, 105

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USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 5, and 7-9 have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

*Rudy Zervigon*  
6/4/6